

**Iowa Department of Natural Resources
Natural Resource Commission**

ITEM

13

DECISION

**TOPIC Lake Restoration Assessment with Iowa State University - Determining
Historic Water Quality Conditions in Iowa Natural Lakes**

The Commission is requested to approve an agreement with Iowa State University (ISU) to conduct a three-year study related to the Department's lake restoration activities. The parties will enter into this Contract for the purpose of funding a study to determine historic water quality conditions in 34 of Iowa's natural lakes using standard paleolimnological methods for use in the setting of realistic goals for lake restoration. Specific objectives of the Project include:

1. Determine total phosphorous levels and sedimentation rates that existed prior to European settlement in Iowa (ca. 1850) along with their level of precision.
2. Use determined total phosphorus levels and sedimentation rates to: (A) aid in the setting of benchmarks for lake restoration; (B) provide quantitative historical information on pre-European status of natural lakes included in the Project; and (C) provide the DNR with clear reference conditions for the minimally disturbed condition of lake ecosystems within the state.
3. Determine eutrophication rates in Iowa's natural lakes via fluxes in sedimentation and nutrient levels, prior to and since European settlement, to evaluate the impact of land-use changes within the lakes' watersheds.
4. Develop the necessary technology (a diatom transfer function) from current environmental conditions and species assemblages unique to Iowa and also inclusive of conditions and assemblages hypothesized to have historically existed in the state.

This three-year study will be funded through the Department's Lake Restoration Program. The Department will pay ISU an amount not to exceed \$272,495 over the three-year study, which will be used to pay personnel, lab analysis, travel, and equipment.

The Department has a long history of working with the proposed service provider, Dr. John Downing, Professor, ISU, on a variety of water quality related research. These past and on-going projects include Diagnostic Studies of Iowa lakes, the Iowa Lakes Information System (interactive lakes database), and collaboration with the Center of Agriculture and Rural Development on lake economics. Past contracts have been completed in a timely, professional manner.

Ken Herring, Administrator
Conservation and Recreation Division
April 10, 2008